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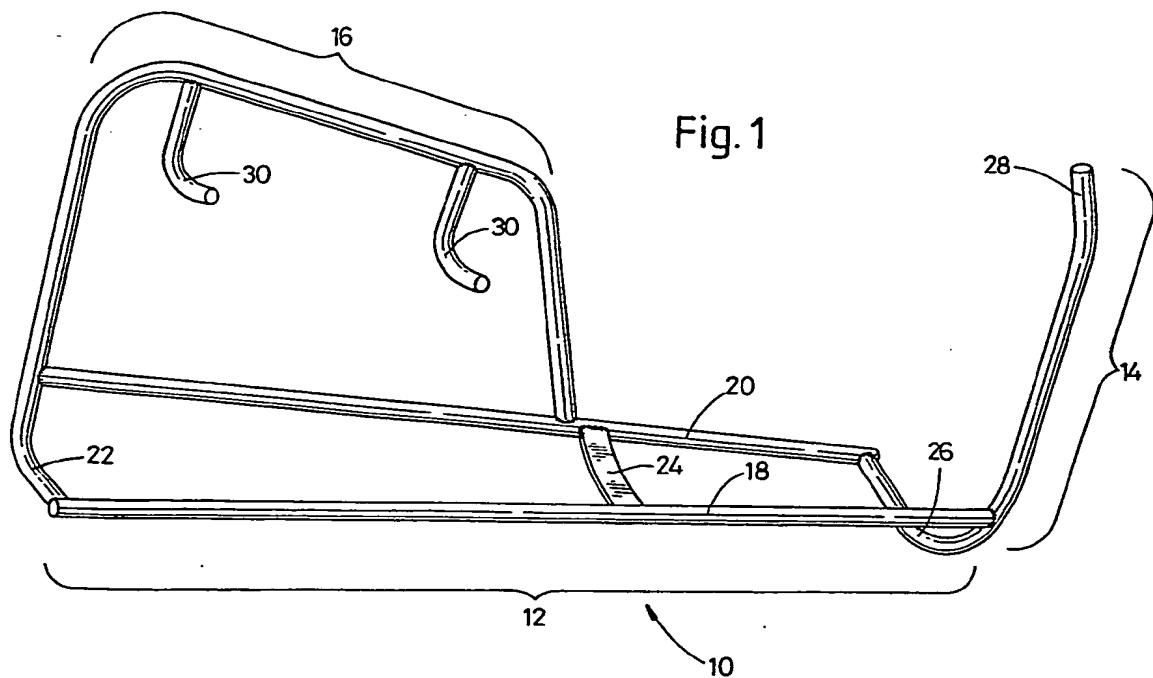
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(54) Turning or lifting apparatus for bed patient

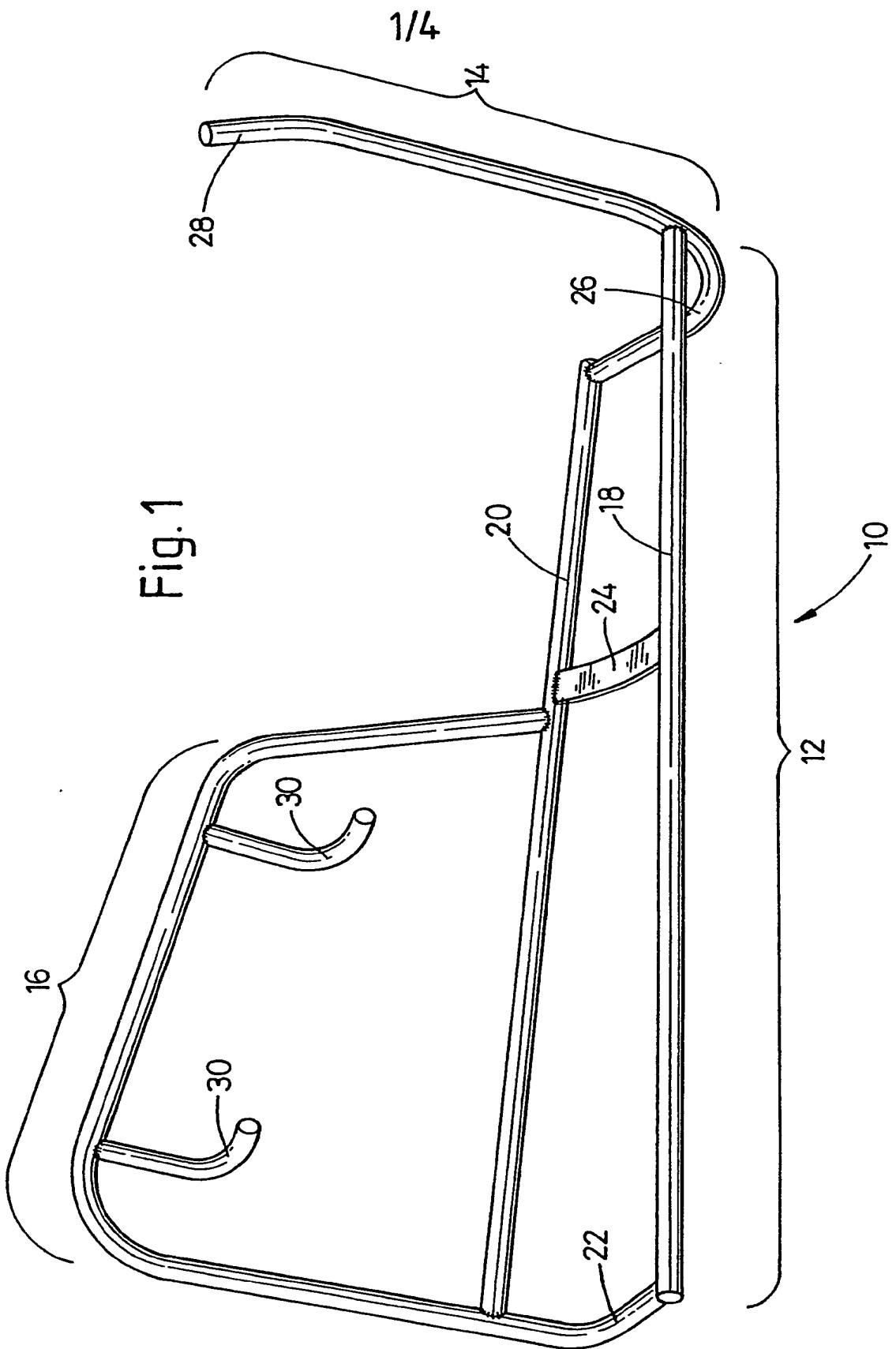
(57) A lifting and turning frame comprises ankle, hip and chest supports 22, 24 and 26 which support the side of the patient about which he is to be turned. His other leg is located by spaced hooks 30, to hold the patient's limbs and torso against relative movement. The patient is then turned by a nurse reaching over the patient's chest to grasp the handle 28 and then pulling towards her so that the patient and frame are turned.



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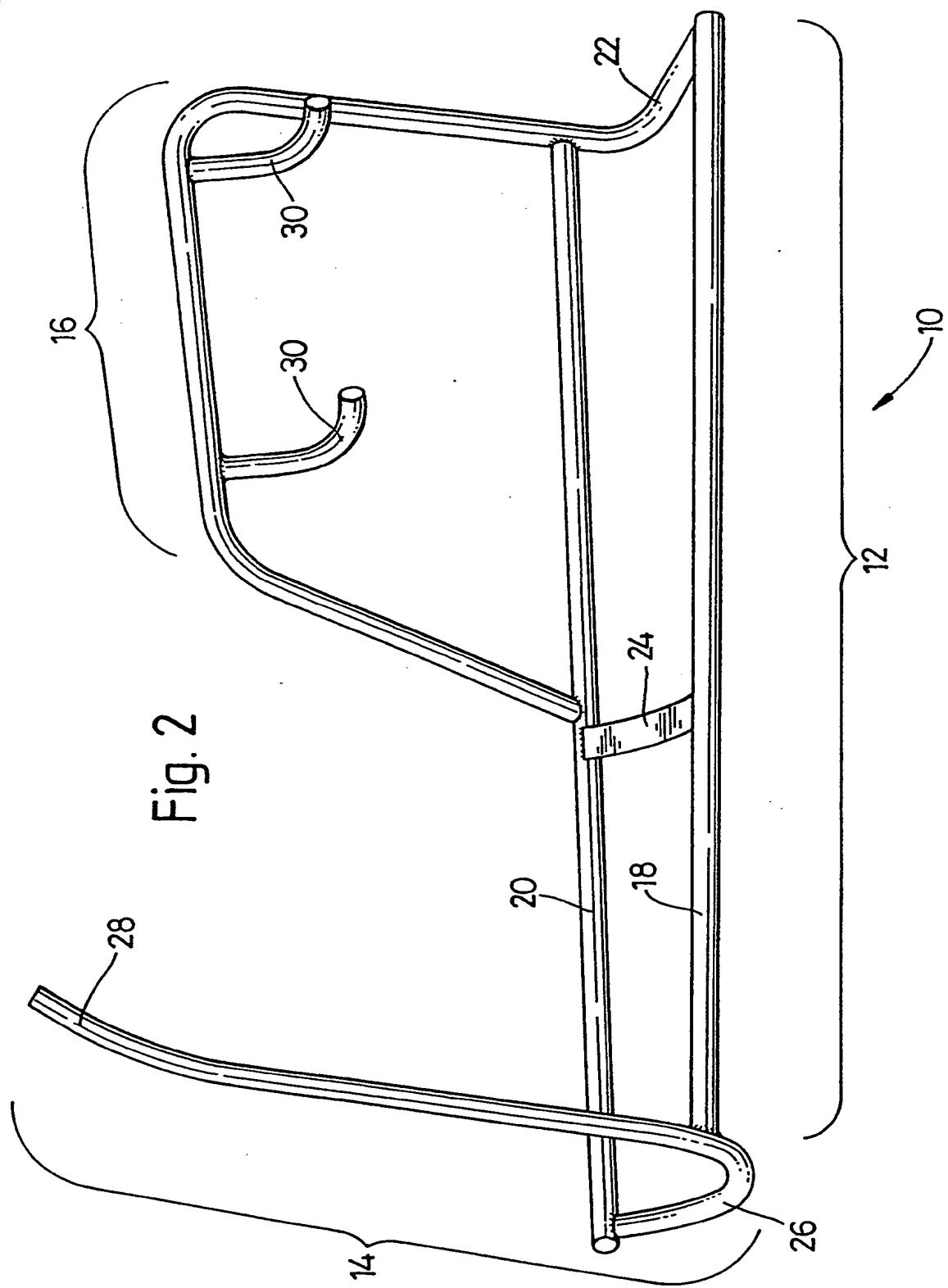
At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

Fig. 1

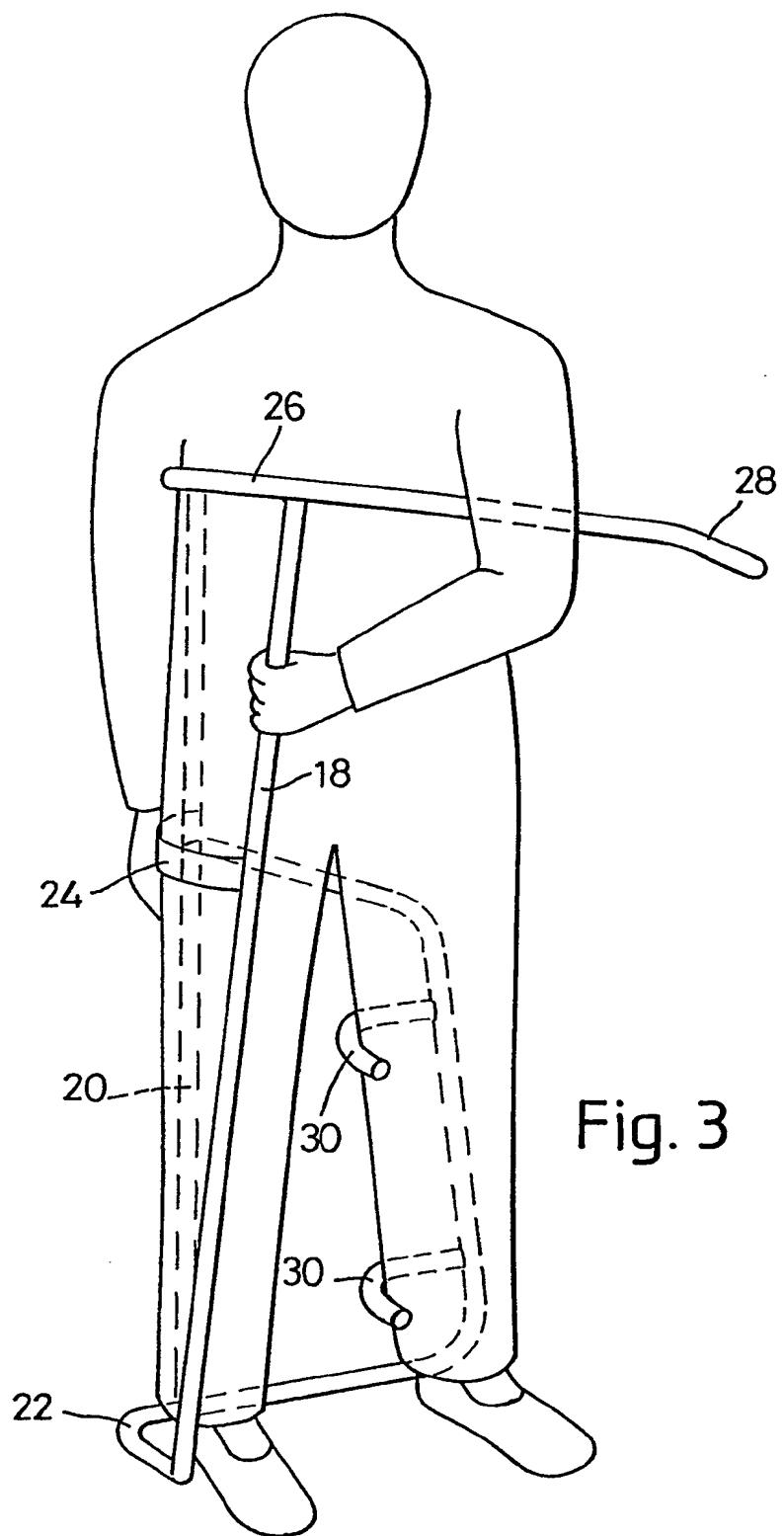


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Fig. 2



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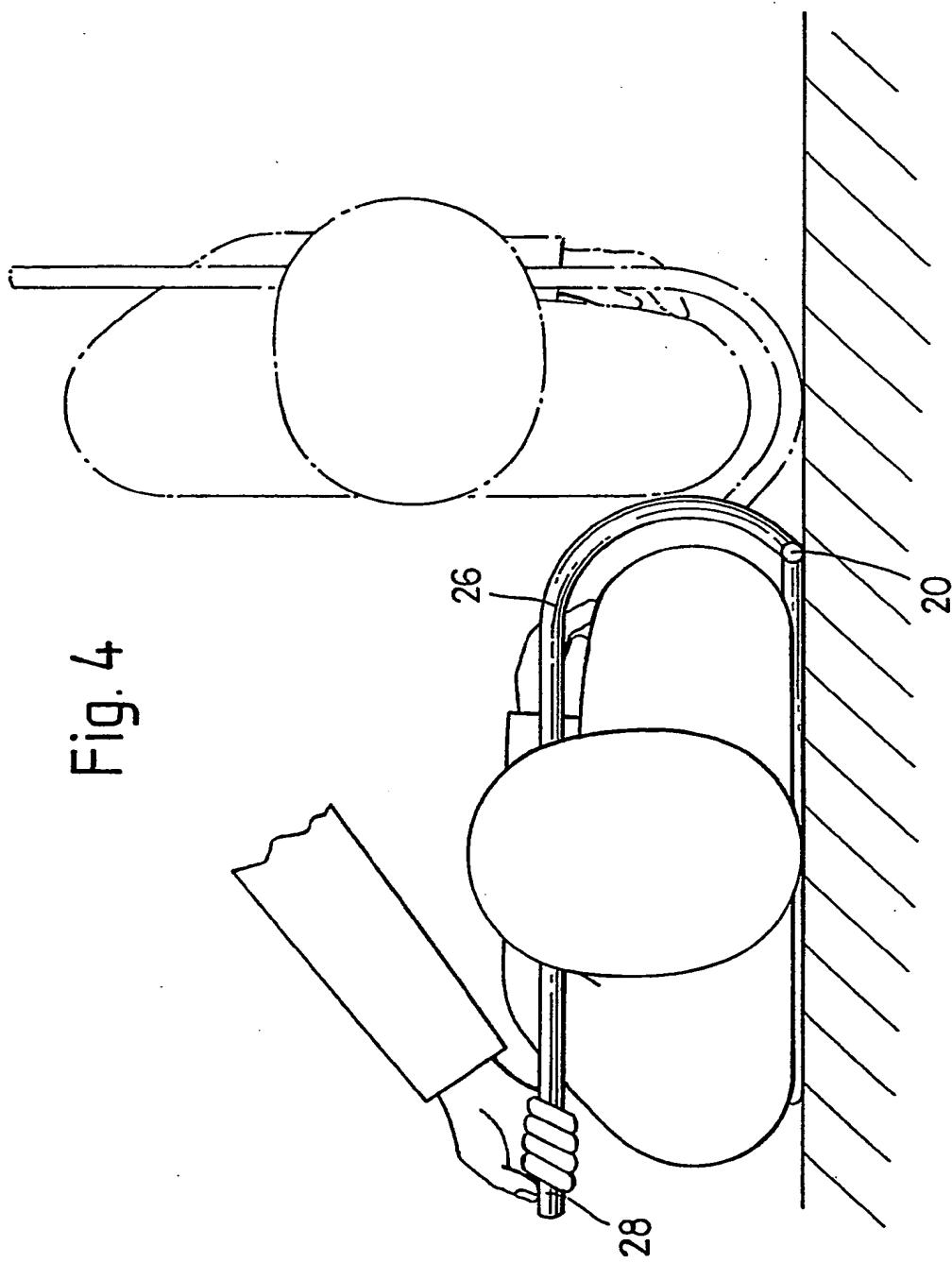


Fig. 4

Turning or Lifting Apparatus

This invention relates to an apparatus for turning or lifting a person in a prone position.

Patients confined to bed for more than a few days need 5 to be turned regularly to avoid pressure sores and for many other reasons as well, such as for changing sheets, using bedpans etc.

Turning a patient requires considerable effort and skill and many injuries are sustained by nursing staff when 10 turning patients and the patient can experience considerable discomfort. The word "turning" is intended to cover the action of temporarily turning a patient from their back onto their side and back again, as well as the action of turning a patient from his back to one side, or from one side to the 15 other, and then leaving him there.

A need exists for a turning frame which facilitates the turning of a patient (as defined above) to allow a nurse to turn a patient with less effort than previously required and with reduced likelihood of injury to the nurse and with 20 reduced discomfort to the patient.

Accordingly, in one aspect, this invention provides a turning or lifting apparatus for a human or animal body lying on a support surface for turning the body about a turning region at or to one side of the body, said apparatus 25 comprising a frame, including:

lateral support means for supporting or engaging a generally longitudinally extending lateral region of said body at or near said turning region;

further support means for locating, supporting, or being engaged by, a part of the body remote from said lateral region, thereby in use substantially to restrict movement of a significant part of the body relative to the
5 remainder thereof;

lever means having handle means spaced away from the turning region to allow a user to turn a body located in the frame about said turning region, and

10 support surface engaging means for rolling over said support surface as said frame is turned.

Said lateral support means preferably comprises spaced frame members for engaging correspondingly spaced lateral regions of the body. For example, the frame may include spaced frame members for engaging lateral portions of the
15 chest, hip and shin or ankle region down one side of the human body. The spaced frame members are preferably generally curved, the convex surfaces of at least two thereof defining said support surface engaging means. The curved portions thus fulfil a dual function of fitting around the hip, chest and ankle regions as well as serving
20 as roll guides. The radius of curvature of the uppermost support surface engaging means is preferably greater than that of the lowermost support surface engaging means.

The frame members are preferably interconnected by two
25 elongate frame elements which advantageously reduce the turning moment required to turn the body. Said lateral support means preferably locates the lateral region of the body so that parts of the body are disposed to either side

of said turning region to provide a counterbalance.

The lever means preferably extends past and beyond the located body, and conveniently extends over the chest of the body.

5 The apparatus may include additional support means for supporting a longitudinally extending region of the other side of the body to hold the body against significant relative movement as it is turned. The additional support means may comprise means for engaging the lower leg portion 10 of the other side of the body, and conveniently comprises spaced hook means for hooking around said lower leg portion.

The frame may be disassembled into parts for storage.

Whilst the invention has been described above, it extends to any inventive combination of the features set out 15 above or in the following description.

The invention may be performed in various ways and two embodiments thereof will now be described in detail, reference being made to the accompanying drawings, in which:-

20 Figure 1 is a perspective view of a first embodiment of turning frame in accordance with this invention, for turning a patient about an axis along their left side;

Figure 2 is a perspective view of a second embodiment of turning frame in accordance with this invention for turning a patient around an axis along their right side;

25 Figure 3 is a sketch showing the frame of Figure 2 fitted against a patient; and

Figure 4 is an end view of the frame as shown in Figure

3 showing the patient on his back (solid lines) and on his side (dotted lines).

The device illustrated in the drawings is designed to allow nursing staff to manoeuvre patients with very little effort and discomfort to the patient. It is designed particularly for patients after hip operations or knee replacements, where the patient's leg needs to be kept straight whilst the patient is turned. However it has many other applications in patient care. For example, it may be used to pick up fallen patients, with minimal twisting or bending of their limbs or joints, and so the device is particularly useful in preventing or reducing the possibility of further injury to the legs or back.

Referring now to Figures 1 to 3, the turning frame 10 comprises three functional areas; namely an area 12 which extends down one side of the patient and which defines the turning axis; an area 14 which locates against or is located by the chest of the user and which provides the turning lever, and an area 16 which locates the user's other leg against movement relative to his body. The turning area 12 additionally locates against three regions of the patient's body, the chest, the hips and the lower leg or ankle, and keeps these in alignment during the turning operation. Thus this feature, in conjunction with the location of the other leg by area 16 means that the whole body is kept substantially rigid as it is turned.

Referring now more specifically to the construction of the device, the turning area is made up of two spaced

longitudinal frame elements 18,20 which are skewed by about 5° in these examples. The longitudinal frame elements 18,20 are connected by a frame section 22 providing ankle support, a frame strip 24 providing hip support and a frame section 5 26 providing chest support. Sections 22 and 26 form part of larger frame elements which will be described below. These sections 22 and 26 are both curved and together provide rolling surfaces which roll over the ground or other support surface as the frame is turned. The skew disposition of the 10 longitudinal frame elements 18 and 20 has been found to give a particularly good rolling action and it is thought that this is due to the mass distribution of the body relative to the rolling surfaces and the combination of a sharply curved lower rolling surface 22 and a more gently curved upper 15 rolling surface 26. In these examples, the ratio of the radii of curvature of the upper surface 26 and lower surface 22 is preferably between about 1.5:1 and 3:1 and ideally about 2:1.

20 The chest support and turning lever area 14 is made up of an extension of the frame section 26 so that it passes across the chest of a patient and beyond to terminate in a turning handle 28.

25 The support area to the other leg is made up of an extension of the frame section 22 which extends in a planar distorted U-shape under the legs of the patient to rejoin longitudinal frame element 20. The mid region of the extension carries two hooks 30 which hook around the other leg of the patient and keep him in a position with his legs

slightly apart as he is turned. This positioning of the legs is often required for hip replacement patients but could be modified as required.

The whole frame is made of welded tubular metal 5 although of course any suitable construction may be used. In particular, the frame may be made up of lightweight releasably connectable frame members so that the frame can be packed compactly for storage.

At the moment it is intended to provide left and right 10 hand versions, as seen in Figures 1 and 2, although the design may be modified so that a single frame member can be used or adjusted to perform both left and right turning.

In use, with the patient lying on their back, the frame is slid laterally under the patient so that the hooks 30 15 engage the "other" leg, i.e. the one not on the turning side, and the ankle, hip and chest supports 22,24,26 firmly against those parts of the patient's body. The patient ideally grabs the longitudinal member 18 to steady himself with the frame section 26 extending over and beyond his 20 chest. The nurse may then position herself beside the patient's turning side, reach over his chest to grasp the handle 28 and then turn the patient singlehandedly by pulling the handle towards her. As the patient is turned, the outer (convex) portions of the ankle and chest supports 25 22 and 26 roll over the ground or other support surface.

The frame may also be used to lift a patient; the above steps are followed and the patient then lifted when on his side, by means of the frame section 26, with suitable

support provided for the patient's head.

Claims

1. A turning or lifting apparatus for a human or animal body lying on a support surface for turning the body about a turning region at or to one side of the body, said apparatus comprising a frame, including:

lateral support means for supporting or engaging a generally longitudinally extending lateral region of said body at or near said turning region;

further support means for locating, supporting, or being engaged by, a part of the body remote from said lateral region, thereby to substantially restrict movement of a significant part of the body relative to the remainder thereof;

lever means having handle means spaced away from the turning region to allow a user to turn a body located in the frame about said turning region, and

support surface engaging means for rolling over said support surface as said frame is turned.

2. Apparatus according to Claim 1, wherein said lateral support means comprises spaced frame members for engaging correspondingly spaced lateral regions of the body.

3. Apparatus according to Claim 2, for use with the human body, including spaced frame members for engaging lateral portions of the chest, hip and shin or ankle region down one side of the body.

4. Apparatus according to Claim 2 or 3, wherein said spaced frame members are generally curved, the convex

surfaces of at least two thereof defining said support surface engaging means.

5. Apparatus according to Claim 4, wherein the radius of curvature of the uppermost support surface engaging means is greater than that of the lowermost support surface engaging means.

6. Apparatus according to Claim 5, wherein said frame members are interconnected by two elongate frame elements.

7. Apparatus according to Claim 6, wherein said elongate frame elements are skew with respect to each other.

10. 8. Apparatus according to any preceding Claim, wherein said lateral support means locates the lateral region of the body so that parts of the body are disposed to either side of said turning axis to provide a counterbalance.

15. 9. Apparatus according to any preceding claim wherein said lever means extends past and beyond the located body.

10. Apparatus according to Claim 9, wherein, in use, the lever means extends over the chest of the body.

20. 11. Apparatus according to any preceding claim, wherein said further support means in use supports a longitudinally extending region of the other side of the body.

12. Apparatus according to Claim 11, wherein said further support means comprises means for engaging the lower leg portion of the other side of the body.

25. 13. Apparatus according to Claim 12, wherein said additional support means comprises spaced hook means for hooking around said lower leg portion.

14. Apparatus according to any preceding Claim wherein said

frame may be disassembled into parts for storage.

15. Apparatus substantially as hereinbefore described, with reference to and as illustrated in any of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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Relevant Technical fields

(i) UK CI (Edition L) A4L: LAS;LABA;LAAE

Search Examiner

(ii) Int CI (Edition 5) A61G 7/10

MR R STAGG

Databases (see over)

(i) UK Patent Office

Date of Search

(ii) ONLINE DATABASES: EDOC

2 MARCH 1993

Documents considered relevant following a search in respect of claims 1-15

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2188542 A (M J SABINE)	

F2(p)

1WL - doc99\fil000513

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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